

WHAT IS CLAIMED IS:

1. A hydraulic pressure control device for a continuously variable transmission for a vehicle, the transmission varying a speed ratio at a speed change rate corresponding to a hydraulic pressure, comprising:

a sensor which detects a vehicle speed;

a hydraulic pressure regulating unit which varies the hydraulic pressure supplied to the transmission; and

a programmable controller programmed to:

calculate a target speed change rate according to a predetermined speed change schedule in which the speed ratio varies in an up-shift direction as the vehicle speed increases;

determine after the vehicle has started to move whether or not a specified condition holds;

cause the hydraulic pressure regulating unit, when the specified condition holds, to supply a hydraulic pressure corresponding to the target speed change rate to the transmission; and

cause the hydraulic pressure regulating unit, when the specified condition does not hold, to supply a hydraulic pressure corresponding to a target start-up speed change rate which is larger than the target speed change rate, to the transmission.

2. The hydraulic pressure control device as defined in Claim 1, wherein the continuously variable transmission comprises a belt type continuously variable transmission in which a primary pulley and a secondary pulley are connected by a

belt, and the speed ratio is varied in accordance with a primary pressure that acts on the primary pulley and a secondary pressure that acts on the secondary pulley, and the controller is further programmed to respectively calculate a steady state primary pressure and a steady state secondary pressure which are required for the primary pulley and the secondary pulley to prevent the belt from slipping over the primary pulley and the secondary pulley, calculate, when the specified condition holds, a target primary pressure by adding a first correction amount which corresponds to the target speed change rate to the steady state primary pressure, and control the hydraulic pressure regulating unit to cause the primary pressure to be equal to the target primary pressure and to cause the secondary pressure to be equal to the secondary steady state pressure.

3. The hydraulic pressure control device as defined in Claim 2, wherein the hydraulic pressure control device further comprises a sensor which detects a depression amount of an accelerator pedal of the vehicle, and the controller is further programmed to calculate, when the specified condition does not hold, the target primary pressure by adding a second correction amount which corresponds to the target start-up speed change rate, and control the hydraulic pressure regulating unit to cause the primary pressure to be equal to the target primary pressure and to cause the secondary pressure to be equal to the secondary steady state pressure.

4. The hydraulic pressure control device as defined in Claim 3, wherein the target start-up speed change rate is set to take a maximum value at a specified depression amount of the accelerator pedal and to decrease as the depression amount becomes

distant from the specified amount, and the controller is further programmed to increase the second correction amount as the target start-up speed change rate increases.

5. The hydraulic pressure control device as defined in Claim 2 wherein the primary pulley is connected to an engine of the vehicle, the hydraulic pressure control device further comprises a sensor which detects an opening of a throttle of the engine, and the controller is further programmed to calculate a final speed ratio based on the predetermined speed change schedule according to the opening of the throttle and the vehicle speed, calculate the target speed ratio by applying a predetermined delay processing to the final speed ratio, calculate the target speed change rate according to a difference between the final speed ratio and the target speed ratio, and increase the first correction amount as the target speed change rate increases.

6. The hydraulic pressure control device as defined in Claim 2, wherein the controller is further programmed to determine that the specified condition holds when the target speed change rate has become equal to or greater than the target start-up speed change rate.

7. The hydraulic pressure control device as defined in Claim 2, wherein the hydraulic pressure regulating unit comprises a line pressure setting valve which sets a line pressure, a primary pressure regulating valve which adjusts the line pressure to the primary pressure, and a secondary pressure adjustment valve which adjusts the line pressure to the secondary pressure, and the controller is

further programmed to determine, when an elapsed time from when the vehicle started to move has not reached a predetermined time, a target line pressure equal to the hydraulic pressure corresponding to the target start-up speed change rate, and control the hydraulic pressure regulating unit to cause the line pressure setting valve to set the line pressure equal to the target line pressure.

8. The hydraulic pressure control device as defined in Claim 2, wherein the primary pulley is connected to an engine of the vehicle which is controlled by an engine controller, the hydraulic pressure control device further comprises a sensor which detects an actual speed ratio of the continuously variable transmission and the controller is further programmed to calculate the steady state primary pressure and the steady state secondary pressure based on a torque of the engine which is input from the engine controller and the actual speed ratio of the transmission.

9. The hydraulic pressure control device as defined in Claim 1, wherein the controller is further programmed to determine that the specified condition holds when an elapsed time from when the vehicle started to move reaches a predetermined time.

10. A hydraulic pressure control device for a continuously variable transmission for a vehicle, the transmission varying a speed ratio at a speed change rate corresponding to a hydraulic pressure, comprising:

means for detecting a vehicle speed;

means for varying the hydraulic pressure supplied to the transmission;

means for calculating a target speed change rate according to a predetermined

speed change schedule in which the speed ratio varies in an up-shift direction as the vehicle speed increases;

means for determining after the vehicle has started to move whether or not a specified condition holds;

means for causing the hydraulic pressure varying means, when the specified condition holds, to supply a hydraulic pressure corresponding to the target speed change rate to the transmission; and

means for causing the hydraulic pressure varying means, when the specified condition does not hold, to supply a hydraulic pressure corresponding to a target start-up speed change rate which is larger than the target speed change rate, to the transmission.

11. A hydraulic pressure control method for a continuously variable transmission for a vehicle, the transmission varying a speed ratio at a speed change rate corresponding to a hydraulic pressure supplied from a hydraulic pressure regulating unit, the method comprising:

determining a vehicle speed;

calculating a target speed change rate according to a predetermined speed change schedule in which the speed ratio varies in an up-shift direction as the vehicle speed increases;

determining after the vehicle has started to move whether or not a specified condition holds;

causing the hydraulic pressure regulating unit, when the specified condition holds, to supply a hydraulic pressure corresponding to the target speed change rate to the transmission; and

causing the hydraulic pressure regulating unit, when the specified condition does not hold, to supply a hydraulic pressure corresponding to a target start-up speed change rate which is larger than the target speed change rate, to the transmission.